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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,592	06/17/2005	Reinhold Rueger	MERCK-3037	4756
23599 7590 10/25/2007 MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201			EXAMINER PARVINI, PEGAH	
			ART UNIT 1793	PAPER NUMBER
			MAIL DATE 10/25/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/539,592

Applicant(s)

RUEGER ET AL.

Examiner

Pegah Parvini

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

### DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Any rejections and/or objections made in the previous Office Action, and not repeated below is hereby withdrawn.

#### ***Claim Rejections - 35 USC § 103***

2. Claims 1-4, 6-10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable by US Patent No 6,569,529 to Phillips et al.

3. Regarding claims 1 and 4, Phillips et al. teach interference pigment flakes comprising a reflector layer in the middle (as shown in Figures 1, 4, 5 and 8), a dielectric layer which, in fact, have alternating layers of low and high index materials which can be formed with layers having a graded index low-to-high, a graded index high-to-low, a graded index low-to-high-to-low, a graded index high-to-low-to-high, as well as combinations and multiples thereof (Abstract; column 1, lines 65-67; column 2, line 1; column 7, lines 66-67; column 8, lines 1-25). It should be noted that this layer is the substrate layer onto which the metal oxide are being deposited (Figure 4). Furthermore, Phillips et al. disclose that the reflector layer may be aluminum, titanium, certain other metals, a combination or alloys thereof, or mica, glass flakes (column 6, lines 39-50; column 11, lines 16-22; claim 42). In addition, Phillips et al. disclose that suitable

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materials for dielectric layers may be low refractive index material such as SiO<sub>2</sub> (column 7, lines 4-8, 38-40).

Additionally, Phillips et al. disclose that desired effects can be achieved through variation of parameters such as thickness of the layers forming the flakes and foils and the index refraction of each layer; thus, it would have been obvious to adjust the thickness to a desired value.

With reference to the outer protective layer, it is noted the instant claim recite the language of "...and optionally (D) an outer protective layer." Therefore, the existence of this layer is optional not necessary.

4. Regarding claims 2 and 3, Phillips et al. disclose that the reflector layer is made up of aluminum, titanium, or combinations thereof or of mica or glass flakes (column 6, lines 39-50; column 11, lines 16-22; claim 42; Figure 4, 5, and 8).

5. Regarding claims 6-8, Phillips et al. disclose that a suitable high refractive index material may be titanium dioxide (TiO<sub>2</sub>), and others (column 7, lines 22-37). It is, further, noted that the high refractive index material is applied onto the low refractive index material of SiO<sub>2</sub> (column 7, lines 3-8; column 8, lines 1-25).

6. Regarding claims 9 and 10, Phillips et al. disclose a substrate, namely called reflector layer (made up of mica or glass flakes) and alternating layers of low and high or high and low refractive index materials in which the low refractive index material is

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SiO<sub>2</sub> and the high refractive index material is TiO<sub>2</sub>; the reference, also, disclose that there could be a varying number of this alternating layers on the dielectric layer of SiO<sub>2</sub> (column 1, lines 65-68; column 2, line 1; column 7 and column 8).

7. Regarding claim 13, Phillips et al. teach that the disclosed pigment, as described in details above, can easily be utilized in paints and inks for various applications (column 3, lines 38-41).

8. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Phillips et al. as applied to claim 1 above, and further in view of PCT Application No. PCT/EP01/03159 to Steudel et al.

This rejection is over PCT/EP01/03159; however, for convenience, the paragraph numbers of the equivalent US Patent, US Patent Application Publication No. 2003/0092815, will be cited below.

9. Regarding claims 5 and 11, Phillips et al. disclose a reflector layer, substrate, made up of mica or glass flakes or of aluminum, titanium or combinations thereof onto which a dielectric layer of SiO<sub>2</sub> is deposited; an alternating layers of low and high or high and low (or any combinations thereof as discussed in details above) may be deposited thereon as well. Furthermore, as described in details above, it would have been obvious to modify the thickness to obtain desired effects (column 1, lines 24-30).

Phillips et al. does not expressly disclose doping carbon black particles, metal particles, and/or pigment particles.

Steudel et al. disclose multilayer pigment based on platelet-form of mica, which is coated with colored or colorless oxides of high and low refractive index materials in which a  $\text{SiO}_2$  is disclosed as a low refractive index material and  $\text{TiO}_2$  is disclosed as a high refractive index material (Abstract; [0019]). Steudel et al., further, disclose introducing carbon black into the low refractive index layer; also, the reference disclose providing a protective layer onto the multilayer pigment ([0039], [0040]).

Thus, it would have been obvious, at the time the invention was made, to modify Phillips et al. in order to include the carbon black into their low refractive index layer (namely called dielectric layer) and to apply a protective layer; the motivation for applying carbon black is to achieve specific color effects (Steudel et al., [0039]) and for applying a protective layer is to improve the light, weather, and chemical stability or to increase the compatibility in various media (Steudel et al., [0040]).

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Phillips et al. as applied to claim 1 above, and further in view of US Patent No. 6,579,355 to Schmidt et al.

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11. Regarding claim 12, Phillips et al. disclose that various coating processes can be utilized in forming the layers such as sol-gel hydrolysis, chemical vapor deposition, and more (column 5, lines 58-65; column 11, lines 29-35).

Phillips et al. does not expressly disclose the hydrolytic decomposition of metal salts in aqueous medium.

Schmidt et al., also, drawn to interference pigment, which are multiply coated in which the hydrolyzed metal salts are precipitated onto the substrate (column 1, lines 5-7; column 4, lines 15-40).

At the time of the invention, it would have been obvious to add the details of the wet chemical method of Schmidt et al. in Phillips et al. motivated by the fact that both references are from the same field of endeavor and Schmidt et al. specifically disclose the deposition of metal oxide layers onto substrates in multilayer pigment with alternating layers of high and low refractive layers materials.

### ***Response to Amendment***

12. Applicants' amendment to claim 1, page 3, filed August 23, 2007 is acknowledged. However, the amendments are not sufficient to place the claim in condition for allowance in view of new ground(s) of rejection set forth above.

13. Applicants' amendment to claims 1, 5 and 12, pages 3 and 4, filed August 23, 2007, with regard to spelling of the terms "characterised", "coloured" and "fluidised" is

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acknowledged. As such, the objection to said claims regarding said informalities are withdrawn.

14. Applicants' amendment to claim 13, pages 4 and 5, filed August 23, 2007, regarding the 112 and 101 rejection as set forth in the first Office Action, is acknowledged. As such, the rejection of said claim under 35 USC 112, and 35 USC 101 is hereby withdrawn. However, it does not place the claim in condition for allowance.

### ***Response to Arguments***

15. Applicant's arguments, see pages 3 and 6, filed August 23, 2007, with respect to the rejection(s) of claim(s) 1-4, 6-9, and 13 under 102(b) and the rejection(s) 5, and 10-11 under 103(a) have been fully considered in combination with the claim amendments and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Phillips et al. and in further view of Steudel et al. and Schmidt et al. as described and indicated in details above.

16. Applicants have argued that Brenner et al. do not disclose a first layer of a low refractive index material, SiO<sub>2</sub>, on the substrate.

The examiner, respectfully, submits that Phillips et al., as described in details above, disclose a layer made up of mica or glass flakes, namely reflector layer, onto



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which a SiO<sub>2</sub> layer is deposited followed by alternating layers of high and low or low and high refractive index metal oxides.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

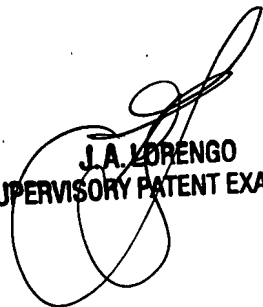
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pegah Parvini whose telephone number is 571-272-2639. The examiner can normally be reached on Monday to Friday 8:00am-4:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PP

  
**J.A. LORENGO**  
**SUPERVISORY PATENT EXAMINER**